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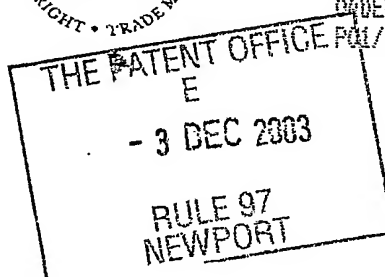




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P01/7700 0.00-0328043.5

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1. Your reference

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2. Patent application number

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0328043.5

3. Full name, address and postcode of the or of each applicant (underline all surnames)

08765257 001

Patents ADP number (if you know it)

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If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

ANCHORING METHODS AND PRODUCTS OF SUCH METHODS

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

GRAHAM F COLES

GRAHAM COLES & CO
24 SEELEYS ROAD
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HP9 1SZ

Patents ADP number (if you know it)

4361556001 ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
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Date of filing
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
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- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
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Patents Form 1/77

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Continuation sheets of this form

Description

5

Claim(s)

Abstract

Drawing(s)

4 + 5

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Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

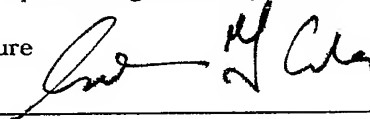
Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature



Date

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GRAHAM F COLES

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Anchoring Methods and Products of such Methods

5 This invention relates to methods of anchoring fittings and the products of such methods.

According to one aspect of the present invention there is provided a method of anchoring a fitting to a member
10 wherein at least a part of the fitting is located within a cavity that opens from a surface of the member, and an element having a bore therethrough is entered into the cavity for retention therein, the element plugging the cavity-opening to trap said part within the cavity with a
15 portion of said part in register with said bore.

According to another aspect of the present invention there is provided a member having a fitting anchored thereto wherein at least a part of the fitting is located
20 within a cavity that opens from a surface of the member, and an element having a bore therethrough is located within the cavity for retention therein, said part being trapped within cavity by an element that plugs the cavity-opening with a portion of said part in register
25 with said bore.

The fitting of both aspects of the invention may be a fastener for use in clamping or otherwise securing an item to the surface of the member. More particularly,
30 the fastener may be a screw-threaded nut for engagement by a threaded-rod or screw-bolt entered into the bore, or may have an internally-threaded tubular portion which projects from under the plug-element into the bore; the tubular portion may extend the length of the bore to open
35 at the surface of the member, but may alternatively extend sufficiently to project beyond this. As an alternative, the fitting, whether for use as a fastener

or otherwise, may involve a rod or other component that extends via the bore to project from said surface.

5 The part of the fitting within the cavity may involve a flange which lies flat on the bottom of the cavity, under the plug-element. In this regard, the underside of the plug-element may be recessed to receive the flange inset therein, and the recess may be configured to restrain the flange from turning relative to the plug-insert.

10 The plug-insert may be retained within the cavity by adhesive, and may be of the same material as said member. The member, which, for example, may be in a sheet or slab form, may be of natural mineral or of a man-made mineral
15 material having a composition containing natural mineral particles in acrylic resin.

A method of anchoring fittings in a slab member, and the slab member with anchored fittings as a product of the
20 method, in accordance with the present invention, will now be described, by way of example, with reference to the accompanying drawing, in which:

25 Figures 1 and 2 are, respectively, a sectional and exploded side elevation of the slab member with two anchored fittings, according to the invention;

30 Figures 3 and 4 are, respectively, a sectional side elevation and a plan view from above of one of two identical, anchored fittings of the arrangement of Figures 1 and 2;

35 Figures 5 and 6 are, respectively, a sectional side elevation and a plan view from below of one of two identical elements used for anchoring the fittings in the arrangement of Figures 1 and 2; and

Figure 7 is a perspective view of a door-hinging arrangement according to the invention, using the principles of the arrangement of Figures 1 and 2.

5 The method and product of the method, to be described, involve the anchoring of metal (or plastics) fasteners in a slab member of a man-made mineral material that has a composition containing natural mineral particles in acrylic resin. In particular, the material of the slab
10 member is a solid non-porous surfacing material which is homogeneously composed of one-third polymethyl methacrylate and two-thirds natural minerals with mineral aluminium trihydrate derived from bauxite as a main component, and which is sold under the Registered Trade
15 Mark CORIAN by E.I DuPont de Nemours and Co..

The anchoring of a fastening to such material has previously been carried out by drilling a hole in the material and inserting a threaded boss of brass or nylon
20 into the hole for retention there as a tight fit. This has not proved satisfactory, in that cracking of the man-made material may result and the boss is prone to pull out. Although adhesive for bonding the mineral material to itself is available, this is not effective for bonding
25 metal or plastics material to it. The method and the product of the method, according to the invention, overcome these problems to provide strong anchoring.

Referring to Figures 1 and 2, two stainless-steel
30 fasteners 1 are in this case anchored in the slab member 2 of the man-made mineral material. Each fastener 1 has (as indicated most clearly in Figure 2) an internally-threaded tubular portion 3 that is upstanding from a flanged-base 4, and is located within a respective
35 cylindrical-cavity 5 in the member 2. The cavities 5 each have an opening 6 in a common face 7 of the slab 2, and this opening 6 is plugged within the cavity 5

substantially flush with the face 7, by a cylindrical element 8 of the same material as the slab member 2. In each case, the tubular portion 3 of the respective fastener 1 is located within a central bore 9 of the element 8 to extend the length of the bore 9 and open substantially flush with the face 7.

The elements 8 are bonded in their respective cavities 5 using an appropriate adhesive for bonding the man-made mineral material to itself; an appropriate adhesive is that sold as "Joint Adhesive for DuPont CORIAN" under the Registered Trade Marks DUPONT and CORIAN, by E.I DuPont de Nemours and Co.. With the bonding of the elements 8 in this way, the flanged-bases 4 of the fasteners 1 are securely trapped in their respective cavities 5 and, as illustrated in Figures 1 and 2, may be engaged by screw-bolts 10 to clamp a fitment 11 to the face 7 of the member 2.

Further details of each fastener 1 and element 8, in particular the way in which the fastener 1 is restrained from turning within its cavity 5, and bonding of the element 8 is facilitated, will now be described with reference to Figures 3 to 6.

Referring to Figure 3 and 4, the fastener 1 is of one-piece construction, with its flanged-base 4 of elongate configuration having straight, parallel sides 12 and rounded ends 13. As shown in Figures 5 and 6, the underside 14 of the element 8 has a recess 15 that is to the same elongate configuration so that it receives the flanged-base 4 inset therein. More especially, the recess 15 has straight, parallel sides 16 and rounded ends 17 conforming to the sides 12 and ends 13 respectively.

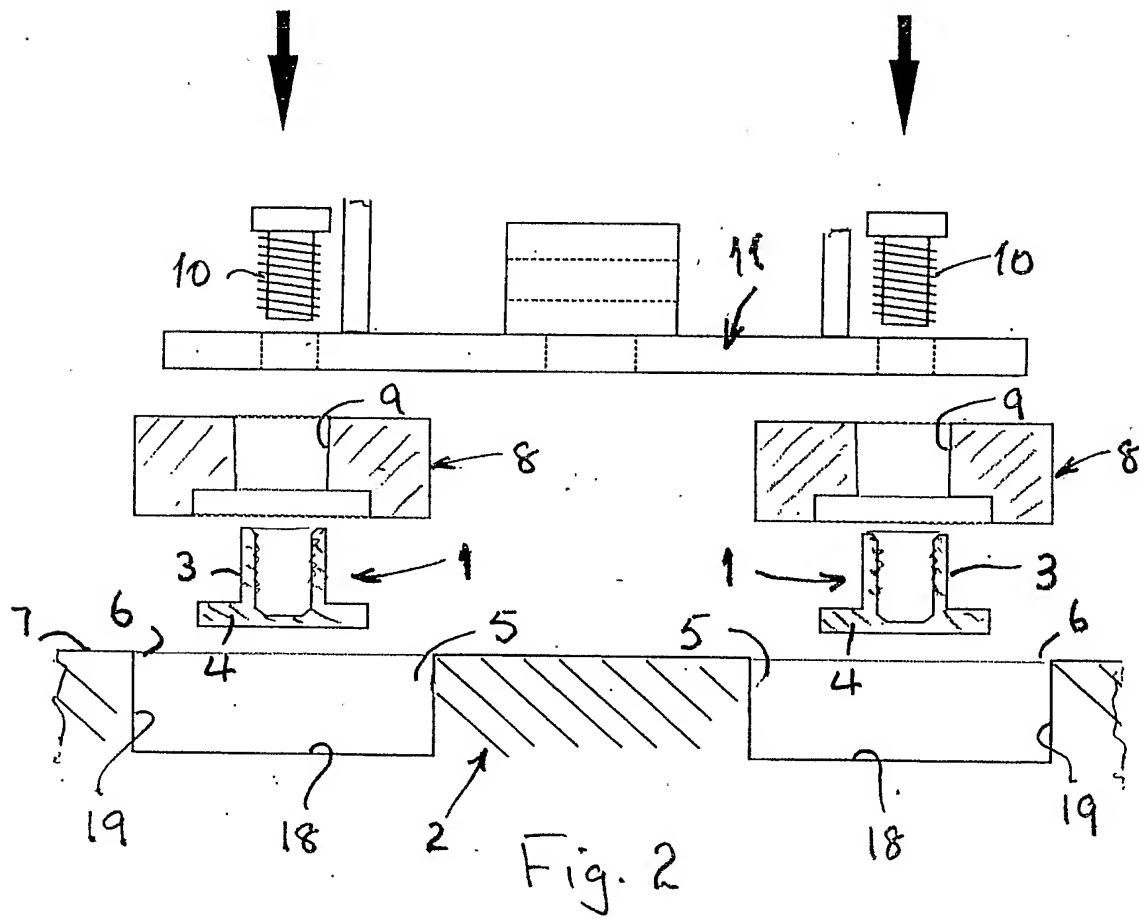
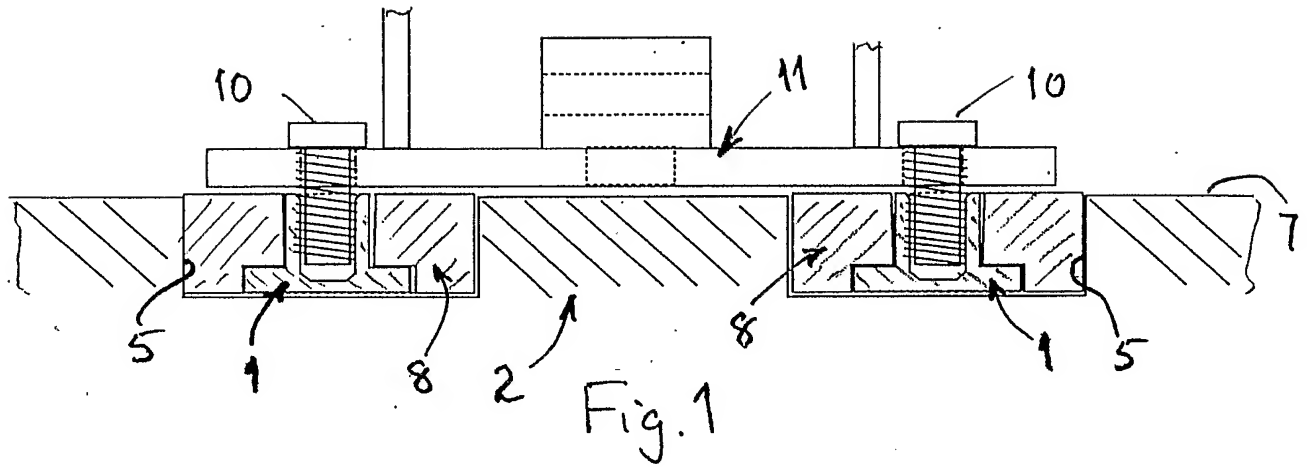
Accordingly, the method of assembly with anchoring of the fastener 1 within the slab member 2 can be readily carried out, once the appropriate cavity 5 has been drilled, simply by first bringing the fastener 1 towards the underside 14 of the element 8 with the tubular portion 3 in register with the bore 9 within the recess 15. The fastener 1 is now closed onto the underside 14 to extend the portion 3 the full length of the bore 9 and inset the flanged-base 4 within the recess 15. Abutment of the sides 12 with the sides 16 in this assembly precludes turning of the fastener 1 relative to the element 8.

The assembled fastener 1 and element 8 are now inserted into their respective cavity 5 to bring the flanged-base 4 down into abutment with the bottom 18 of the cavity 5, after a film of the appropriate adhesive has been deposited on the bottom 18 and side wall 19 of the cavity 5 (Figure 2). The underside 14 of the element 8 is cut away to leave a peripheral channel 20 with interconnected radial channels 21 for dispersal of surplus adhesive (Figures 5 and 6).

In one application of the invention as illustrated in Figure 7, a slab 22 corresponding to the slab 2 forms a door to a kitchen cabinet, and a bracket 23 of a hinge 24 is clamped to the back face 25 of the slab 22 using four screw bolts 26. Each screw-bolt 26 is engaged tightly with a fastener corresponding to the fastener 1, anchored correspondingly to the slab.



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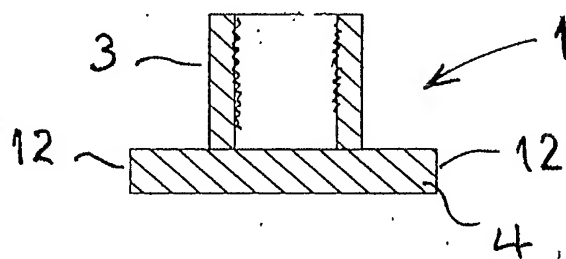


Fig. 3

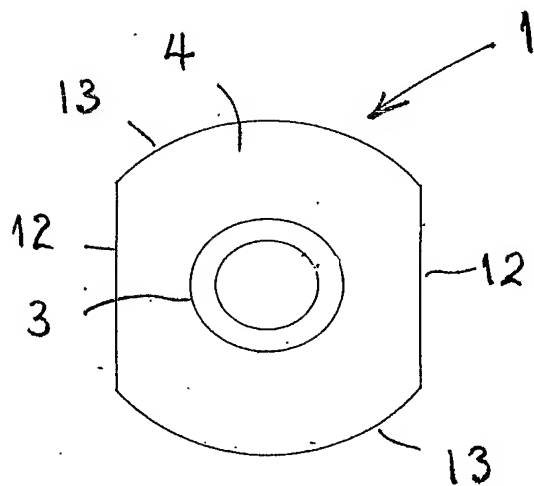


Fig. 4



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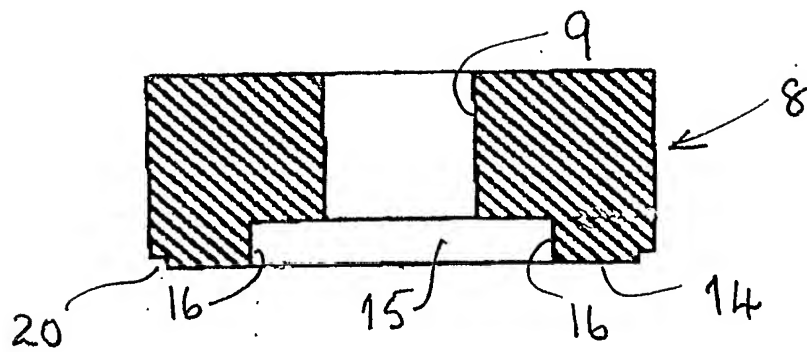


Fig. 5

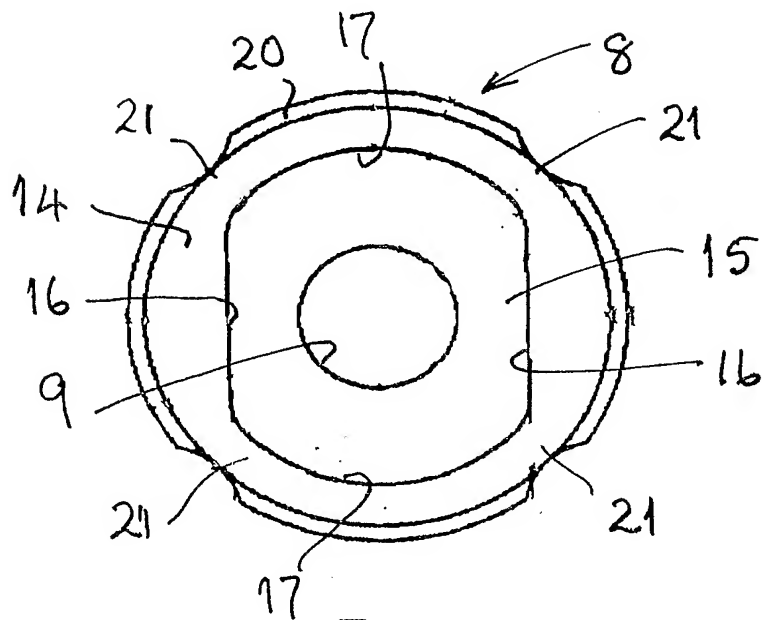


Fig. 6



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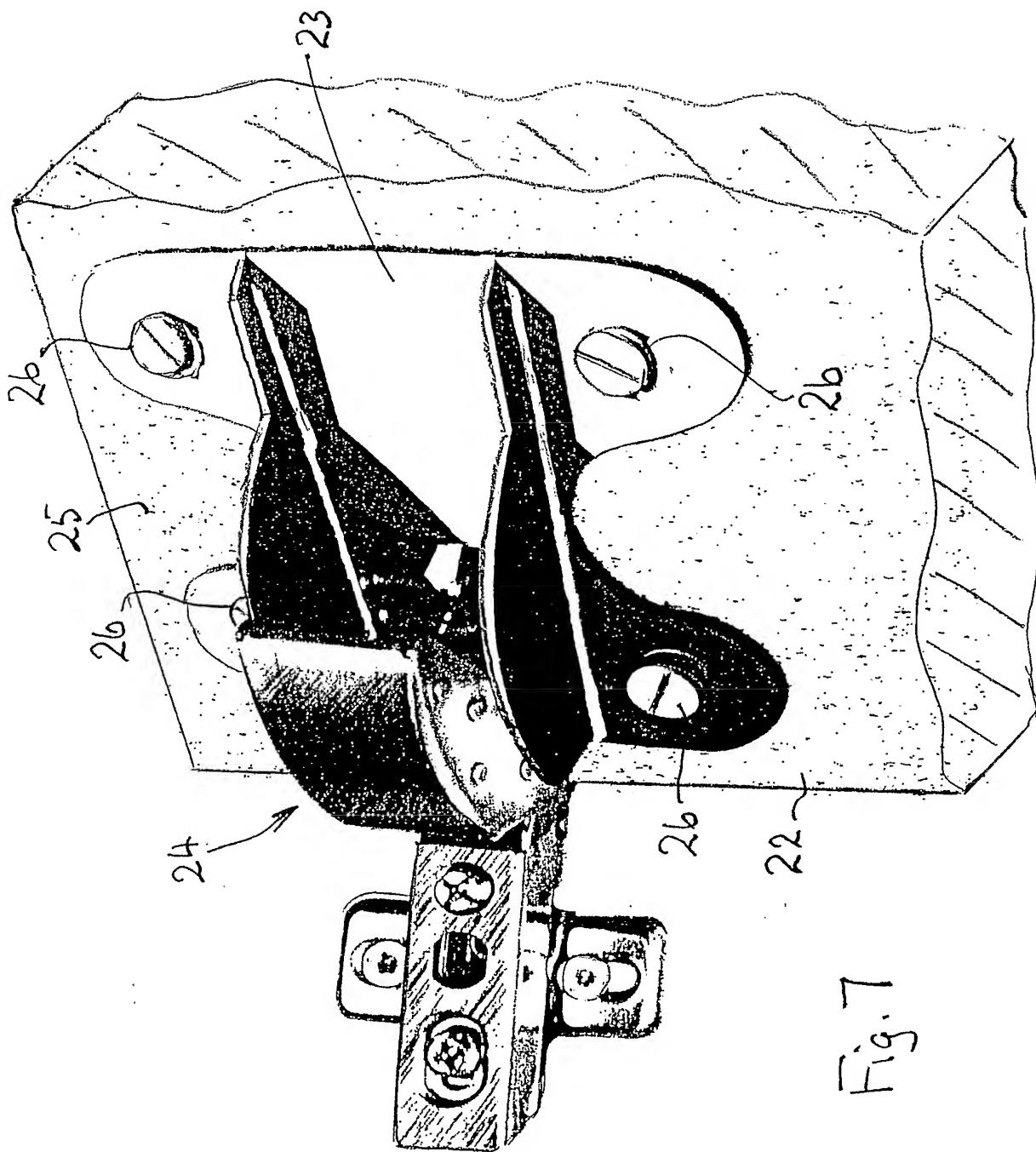


Fig. 7



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